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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,401	08/09/2001	Ronald E. Nichols	287122-00004	4498

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EXAMINER

DANG, THUAN D

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/925,401

Applicant(s)

NICHOLS ET AL.

Examiner

Thuan D. Dang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/18/03</u> | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-10 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gi (4,463,203) in view of either Roy (4,740,270) or Solbakken et al (4,250,158) in considered with the prior art admitted by applicants.

Gi discloses a process of pyrolysis of used tire to produce a product comprising solid carbon, oil and fuel gas in the presence of bentonite (the abstract).

Gi is totally silent as to selection a pressure for the pyrolysis (see the entire patent for details). However, either Solbakken or Roy disclose operating a similar process under low pressure (the abstract of the two patents).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Gi process by operating the pyrolysis under low pressure since while Solbakken discloses that a low pressure pyrolysis optimizes oil yield at the expense of fuel gas generation and produces higher quality carbon black under low temperatures which makes the reaction vessel cheaper to build and maintain (col. 6, line 65 thru col. 7, line 6), Roy discloses that under sub-atmospheric pressure, the yield of the highly desired liquid hydrocarbons is significantly increased while the yields of the less desired gaseous hydrocarbons and solid carbonadoes material are lowered (col. 1, line 57 thru col. 2, line 1).

Gi does not disclose that bentonite is a pillared clay or a commercial clay containing product such as cat litter and oil spill absorbent (see the entire patent for details). However, as disclosed by applicants on page 7, lines 14-25). Pillared clays, smectile ore, cat litter, and oil spill absorbent are made of or is bentonite.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Gi process by using these materials as the bentonite in the Gi process since it is expected that using any material is or contains bentonite yields similar results.

While applicants claim an amount of the clay of from 0.01 to 3.0 wt% based on the total weight of said hydrocarbon material, Gi discloses an amount of 3.1 wt% of bentonite. These amounts are so close.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Gi process by operating a process having 3 wt% of bentonite to arrive at the applicants' claimed process since it has been established by the patent

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law that if range of prior art and claimed range do not overlap, obviousness may still exist if the ranges are close enough that one would not expect a difference in properties. *In re Woodruff* 16 USPQ 2d 1934 (Fed. Cir. 1990); *Titanium Metals Corp. V. Banner* 227 USPQ 773 (Fed. Cir. 1985); *In re Allers*, 105 USPQ 233 (CCPA 1955).

The temperature of the process can be found on column 2, lines 30-50.

Regarding claims 12-13, on column 2, lines 30-51, Gi discloses that the process has three different phases which has different temperature, namely 100-200°C, still 500°C, and 500-600°C.

Gi does not discloses that these phases are operated in different spaces. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Gi process to do that so that the Gi process can be operated continuously.

Gi does not disclose that a fuel input is adjusted to take advantage of the exothermic nature of the reaction (see the entire patent for details). However, as known the pyrolysis is a naturally exothermic reaction (see page 8, line 26 of the specification).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Gi process to adjust energy to heat the process according to the heat required by the nature the reaction. An exothermal reaction liberates heat during the reaction. Therefore, an input of energy is needed less than an endothermic reaction.

The pressure of the process can be found on col. 7, lines 7-13 of Solbakken and figure 3 of Roy.

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Response to Amendment

The Declaration filed on 11/18/2003 under 37 CFR 1.131 has been considered but is ineffective to overcome the rejection of claims 1-10 under 103 rejection over applied reference.

In (7) of the declaration, applicants declare that Gi does not teach the use of clay as catalyst at all. This declaration is not correct since Gi does not disclose the function of the clay (see the entire patent for details). Gi discloses using clay for the process. Further in present claims 1, 9 and 10, applicants do not claim clay.

In (8) of the declaration, applicants declare that Solbakken uses a higher temperature than Applicants' one and Solbakken uses a low pressure to optimize the oil yield, not carbonaceous product is. This declaration is incorrect since applicants do not claim temperature except in claim 10. The claimed temperature is overlapped with the same of Solbakken. Applicants also claim liquid as a product, not only solid carbonaceous residue.

In (9), applicants declare that the low pressure used by Roy is insignificant compared with the one used for the claimed process. This declaration is incorrect since in figure 3 of Roy, Roy discloses a pressure around 50 mm Hg which is 2 inch Hg. Further, applicants do not claim a specific pressure, except claims 14 and 15.

In (10), applicants declare that in applicants' opinion, Gi does not disclose three phases. Instead, Gi merely shows how the reaction proceeds. This declaration is incorrect since as interpreted by the examiner, Gi clearly discloses that the Gi reaction is operated at three phases of temperatures as discussed in the above rejection.

Regarding (11)-(28), applicants declare that their process performs better when a catalyst, namely bentonite or bentonite/metals. This declaration cannot overcome the rejection over the

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applied arts since the declared process is not compared with the closest art process. *Ex parte Beck* USPQ 2d 2000 (BPAI 1987), *In re Burel* 201 USPQ 67 (CCPA 1979), *In re Merchant* 197 USPQ 785 (CCPA 1976). Further, the declared process is not the claimed process. For examples, the claimed process (1) is not run at 10 "Hg, (2) does not use rubber, (3) does not use bentonite as the catalyst (see claims) note that in claim 3, bentonite is only one among selected clay. Applicants are reminded that it has been established that evidence of unobviousness must be commensurate in scope with the claims. *In re Kulling* 14 USPQ 2d 1056, 1058 (Fed. Cir. 1990); *In re Clemans* 206 USPQ 389 (CCPA 1980); *In re Dill* 202 USPQ 805, 808 (CCPA 1979); *In re Greenfield* 197 USPQ 227 (CCPA 1978); *In re Lindner* 173 USPQ 356, 358 (CCPA 1972); *In re Hyson* 172 USPQ 399 (CCPA 1972); *In re Tiffin* 171 USPQ 294 (CCPA 1971); *In re McLaughlin* 170 USPQ 209 (CCPA 1971); *In re Kennedy* 168 USPQ 587 (CCPA 1971); *In re Law* 133 USPQ 653 (CCPA 1962).

Response to Arguments

Applicant's arguments filed on 1/14/04 have been fully considered but they are not persuasive.

The argument that Gi does not disclose using three phases instead of describing at what temperature the various reactions will occur is not persuasive since as discussed in the previous rejection, Gi discloses clearly on column 2, lines 30-51 that the process has three different phases which is operated at three different temperature, namely 100-200°C, still 500°C, and 500-600°C.

The argument that there is absolutely no indication that affirmative steps were taken to adjust the fuel input, as in the present claimed process is not persuasive since as discussed in the

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previous rejection although Gi does not disclose adding fuel input, It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Gi process to adjust the energy input according to the heat required by the reaction to maintain the reaction.

The argument that Gi uses much higher temperature as in column 1, lines 14 is not persuasive since Gi uses different phases each of which has different temperature (column 2, lines 30-51).

The argument that Roy discloses that a sub atmospheric pressure affects the yield of liquid and solid product (col. 1, lines 65-68) is correct since as taught by Roy, one having ordinary skill in the must recognize that pressure of the process has an affect to the amount of solid or the liquid product. Therefore, It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Gi process as taught by Roy to select an appropriate pressure such as the applicants' claimed pressure since pressure is recognized by Roy as an affective variables.

The argument that Solbakken does not teach the use to heating in more than one phase is not persuasive since this teaching is disclosed by Gi.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 571-272-1445. The examiner can normally be reached on Mon-Thu.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thuan D. Dang
Primary Examiner
Art Unit 1764

09925401.20040223
February 23, 2004

A handwritten signature in black ink, appearing to read 'Thuan D. Dang', is written over a faint, dotted line that follows the general shape of the signature.